Claims

[c1] 1. A system for performing engine baseline modeling, comprising:
an engine service database that contains engine data;
a preprocessor for processing the engine data into a predetermined format; and
an engine baseline modeling component that builds an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions.

[c2] 2. The system according to claim 1, wherein the preprocessor comprises a data acquisition component that extracts the engine data from the engine service database.

[c3] 3. The system according to claim 1, wherein the preprocessor comprises a data scrubbing component that cleans the engine data.

[c4] 4. The system according to claim 1, wherein the preprocessor comprises a data segmenting component that segments the engine data into a plurality of groups.

[c5] 5. The system according to claim 1, wherein the engine baseline model is a regression model.

[c6] 6. The system according to claim 1, wherein the engine baseline modeling component comprises a metric component that validates the engine baseline model.

[c7] 7. The system according to claim 1, wherein the engine baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c8] 8. The system according to claim 1, further comprising a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c9] 9. A system for performing engine baseline modeling, comprising:
an engine service database that contains engine data;
a preprocessor for processing the engine data into a predetermined format;
an engine baseline modeling component that builds an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c10] 10. The system according to claim 9, wherein the preprocessor comprises a data acquisition component that extracts the engine data from the engine service database.

[c11] 11. The system according to claim 9, wherein the preprocessor comprises a data scrubbing component that cleans the engine data.

[c12] 12. The system according to claim 9, wherein the preprocessor comprises a data segmenting component that segments the plurality of engine data into a plurality of groups.

[c13] 13. The system according to claim 9, wherein the engine baseline modeling component comprises a metric component that validates the engine baseline model.

[c14] 14. The system according to claim 9, wherein the engine baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c15] 15. A system for performing engine baseline modeling of an aircraft engine, comprising:
an engine service database that contains aircraft engine data;
a preprocessor for processing the aircraft engine data into a predetermined format, wherein the preprocessor corrects the aircraft engine data to standard conditions derived for an aircraft engine;

an engine baseline modeling component that builds an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c16] 16. The system according to claim 15, wherein the engine baseline modeling component comprises a metric component that validates the engine baseline model.

[c17] 17. The system according to claim 15, wherein the engine baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c18] 18. A system for performing engine baseline modeling of an aircraft engine, comprising:
an engine service database that contains aircraft engine data;
a preprocessor for processing the aircraft engine data into a predetermined format, wherein the preprocessor corrects the aircraft engine data to standard conditions derived for an aircraft engine;
an engine baseline modeling component that builds an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions, and the engine baseline modeling component comprising a metric component to validate the engine baseline model; and
a model diagnostics component that evaluates the performance of the of the engine baseline model.

[c19] 19. A system for performing engine baseline modeling of an aircraft engine, comprising:
means for storing aircraft engine data;
means for preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing means corrects the aircraft engine data to

standard conditions derived for an aircraft engine;
means for building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
means for evaluating the performance of the of the engine baseline model.

[c20] 20. The system according to claim 19, wherein the building means comprises means for validating the engine baseline model.

[c21] 21. The system according to claim 19, wherein the building means comprises means for generating rules for cleaning the preprocessed data.

[c22] 22. A method for performing engine baseline modeling, comprising:
storing engine data;
preprocessing the engine data into a predetermined format; and
building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions.

[c23] 23. The method according to claim 22, wherein the preprocessing comprises extracting the engine data from an engine service database.

[c24] 24. The method according to claim 22, wherein the preprocessing comprises cleaning the engine data.

[c25] 25. The method according to claim 22, wherein the preprocessing comprises segmenting the engine data into a plurality of groups.

[c26] 26. The method according to claim 22, wherein the engine baseline model is a regression model.

[c27] 27. The method according to claim 22, further comprising validating the engine baseline model.

[c28] 28. The method according to claim 22, further comprising generating rules for cleaning the preprocessed data.

[c29] 29. The method according to claim 22, further comprising evaluating the performance of the of the engine baseline model.

[c30] 30. A method for performing engine baseline modeling, comprising:
storing engine data;
preprocessing the engine data into a predetermined format;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
evaluating the performance of the of the engine baseline model.

[c31] 31. The method according to claim 30, wherein the preprocessing comprises extracting the engine data from an engine service database.

[c32] 32. The method according to claim 30, wherein the preprocessing comprises cleaning the engine data.

[c33] 33. The method according to claim 30, wherein the preprocessing comprises segmenting the engine data into a plurality of groups.

[c34] 34. The method according to claim 30, further comprising validating the engine baseline model.

[c35] 35. The method according to claim 30, further comprising generating rules for cleaning the preprocessed data.

[c36] 36. A method for performing engine baseline modeling of an aircraft engine, comprising:
storing aircraft engine data;
preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and

evaluating the performance of the of the engine baseline model.

[c37] 37. The method according to claim 36, further comprising validating the engine baseline model.

[c38] 38. The method according to claim 36, further comprising generating rules for cleaning the preprocessed data.

[c39] 39. A method for performing engine baseline modeling of an aircraft engine, comprising:
storing aircraft engine data;
preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions;
validating the engine baseline model; and
generating model diagnostics from the engine baseline model.

[c40] 40. A method for performing engine baseline modeling of an engine, comprising:
presenting a user with aircraft engine data;
prompting the user to select engine performance variables and engine operating conditions from the aircraft engine data to model;
in response to the user selection, preprocessing the engine data into a predetermined format; and
using a regression to build an engine baseline model from the data.

[c41] 41. The method according to claim 40, wherein the preprocessing comprises cleaning the engine data.

[c42] 42. The method according to claim 40, further comprising validating the engine baseline model.

[c43] 43. The method according to claim 40, further comprising generating rules for cleaning the preprocessed data.

[c44] 44. The method according to claim 40, further comprising evaluating the performance of the of the engine baseline model.

[c45] 45. The method according to claim 44, further comprising displaying results from the evaluation to the user.

[c46] 46. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:
storing engine data;
preprocessing the engine data into a predetermined format; and
building an engine baseline model from the preprocessed data, wherein the engine baseline model relates engine performance variables as a function of engine operating conditions.

[c47] 47. The computer-readable medium according to claim 46, wherein the preprocessing comprises instructions for extracting the engine data from an engine service database.

[c48] 48. The computer-readable medium according to claim 46, wherein the preprocessing comprises instructions for cleaning the engine data.

[c49] 49. The computer-readable medium according to claim 46, wherein the preprocessing comprises instructions for segmenting the engine data into a plurality of groups.

[c50] 50. The computer-readable medium according to claim 46, wherein the engine baseline model is a regression model.

[c51] 51. The computer-readable medium according to claim 46, further comprising instructions for validating the engine baseline model.

[c52] 52. The computer-readable medium according to claim 46, further

comprising instructions for generating rules for cleaning the preprocessed data.

[c53] 53. The computer-readable medium according to claim 46, further comprising instructions for evaluating the performance of the of the engine baseline model.

[c54] 54. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:
storing engine data;
preprocessing the engine data into a predetermined format;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
evaluating the performance of the of the engine baseline model.

[c55] 55. The computer-readable medium according to claim 54, wherein the preprocessing comprises instructions for extracting the engine data from an engine service database.

[c56] 56. The computer-readable medium according to claim 54 wherein the preprocessing comprises instructions for cleaning the engine data.

[c57] 57. The computer-readable medium according to claim 54, wherein the preprocessing comprises instructions for segmenting the engine data into a plurality of groups.

[c58] 58. The computer-readable medium according to claim 54, further comprising instructions for validating the engine baseline model.

[c59] 59. The computer-readable medium according to claim 54, further comprising instructions for generating rules for cleaning the preprocessed data.

[c60] 60. A computer-readable medium storing computer instructions for

instructing a computer system to perform engine baseline modeling, the computer instructions comprising:
storing aircraft engine data;
preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions; and
evaluating the performance of the of the engine baseline model.

[c61] 61. The computer-readable medium according to claim 60, further comprising instructions for validating the engine baseline model.

[c62] 62. The computer-readable medium according to claim 60, further comprising instructions for generating rules for cleaning the preprocessed data.

[c63] 63. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:
storing aircraft engine data;
preprocessing the aircraft engine data into a predetermined format, wherein the preprocessing corrects the aircraft engine data to standard conditions derived for an aircraft engine;
building an engine baseline model from the preprocessed data using a regression analysis, wherein the regression analysis relates engine performance variables as a function of engine operating conditions;
validating the engine baseline model; and
generating model diagnostics from the engine baseline model.

[c64] 64. A computer-readable medium storing computer instructions for instructing a computer system to perform engine baseline modeling, the computer instructions comprising:

presenting a user with aircraft engine data;
prompting the user to select engine performance variables and engine operating conditions from the aircraft engine data to model;
in response to the user selection, preprocessing the engine data into a predetermined format; and
using a regression to build an engine baseline model from the preprocessed data.

[c65] 65. The computer-readable medium according to claim 64, wherein the preprocessing comprises instructions for cleaning the engine data.

[c66] 66. The computer-readable medium according to claim 64, further comprising instructions for validating the engine baseline model.

[c67] 67. The computer-readable medium according to claim 64, further comprising instructions for generating rules for cleaning the preprocessed data.

[c68] 68. The computer-readable medium according to claim 64, further comprising instructions for evaluating the performance of the of the engine baseline model.

[c69] 69. The computer-readable medium according to claim 68, further comprising instructions for displaying results from the evaluation to the user.

[c70] 70. A system for performing baseline modeling of a process, comprising:
a service database that contains data relating to the process;
a preprocessor for processing the data into a predetermined format; and
a baseline modeling component that builds a baseline model from the preprocessed data, wherein the baseline model relates process performance variables as a function of process operating conditions.

[c71] 71. The system according to claim 70, wherein the preprocessor comprises a data acquisition component that extracts the data from the service database.

[c72] 72. The system according to claim 70, wherein the preprocessor comprises a data scrubbing component that cleans the data.

[c73] 73. The system according to claim 70, wherein the preprocessor comprises a data segmenting component that segments the data into a plurality of groups.

[c74] 74. The system according to claim 70, wherein the baseline model is a regression model.

[c75] 75. The system according to claim 70, wherein the baseline modeling component (34) comprises a metric component that validates the baseline model.

[c76] 76. The system according to claim 70, wherein the baseline modeling component comprises a heuristics component that generates rules for cleaning the preprocessed data.

[c77] 77. The system according to claim 70, further comprising a model diagnostics component that evaluates the performance of the of the baseline model.

[c78] 78. A method for performing baseline modeling of a process, comprising:
storing process data;
preprocessing the process data into a predetermined format; and
building a baseline model from the preprocessed data, wherein the baseline model relates process performance variables as a function of process operating conditions.

[c79] 79. The method according to claim 78, wherein the preprocessing comprises extracting the process data from a service database.

[c80] 80. The method according to claim 78, wherein the preprocessing comprises cleaning the process data.

[c81] 81. The method according to claim 78, wherein the preprocessing comprises

segmenting the process data into a plurality of groups.

[c82] 82. The method according to claim 78, wherein the process baseline model is a regression model.

[c83] 83. The method according to claim 78, further comprising validating the baseline model.

[c84] 84. The method according to claim 78, further comprising generating rules for cleaning the preprocessed data.

[c85] 85. The method according to claim 78, further comprising evaluating the performance of the of the baseline model.

[c86] 86. A computer-readable medium storing computer instructions for instructing a computer system to perform baseline modeling of a process, the computer instructions comprising:
storing process data;
preprocessing the process data into a predetermined format; and
building a baseline model from the preprocessed data, wherein the baseline model relates process performance variables as a function of process operating conditions.

[c87] 87. The computer-readable medium according to claim 86, wherein the preprocessing comprises instructions for extracting the process data from a service database.

[c88] 88. The computer-readable medium according to claim 86, wherein the preprocessing comprises instructions for cleaning the process data.

[c89] 89. The computer-readable medium according to claim 86, wherein the preprocessing comprises instructions for segmenting the process data into a plurality of groups.

[c90] 90. The computer-readable medium according to claim 86, wherein the baseline model is a regression model.

[c91] 91. The computer-readable medium according to claim 86, further comprising instructions for validating the baseline model.

[c92] 92. The computer-readable medium according to claim 86, further comprising instructions for generating rules for cleaning the preprocessed data.

[c93] 93. The computer-readable medium according to claim 86, further comprising instructions for evaluating the performance of the of the baseline model.